



# **CERTIFICATION AND FINANCING PROPOSAL**

## **NEW WATER TRANSMISSION LINE SAN LUIS, ARIZONA**

*Revised: March 14, 2013*

# CERTIFICATION AND FINANCING PROPOSAL

## NEW WATER TRANSMISSION LINE SAN LUIS, ARIZONA

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## EXECUTIVE SUMMARY

### NEW WATER TRANSMISSION LINE SAN LUIS, ARIZONA

<b>Project:</b>	The Project consists of constructing a new 16-inch water transmission line to interconnect two separate water distribution systems on the east side of the city of San Luis, AZ (the “Project”).
<b>Project Objective:</b>	The purpose of the Project is to increase access to potable water service, increase service reliability and reduce incidents of low pressure and/or service interruption, contributing to the reduction of the risks associated with waterborne diseases.
<b>Expected Project Outcome:</b>	The Project is expected to generate the following environmental and human health benefits: <ul style="list-style-type: none"><li>• Improve service by increasing access and use of sustainable drinking water services for 5,939 residential service connections.</li><li>• Provide sufficient water quantity (7 MGD) to meet current and future demands.</li><li>• Prevent risks of poor water quality associated with inadequate water pressure.</li></ul>
<b>Population Benefitted:</b>	24,000 residents of City of San Luis, AZ <sup>1</sup>
<b>Project Sponsor:</b>	City of San Luis, AZ
<b>Project Cost:</b>	US\$631,176
<b>NADB Grant:</b>	US\$500,000 from NADB’s Community Assistance Program (CAP)

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<sup>1</sup> Population benefitted is estimated based on the number of service connections receiving improved service and the persons per household of 3.51 as provided by the US Census 2006-2010.

BOARD DOCUMENT BD 2013-4  
CERTIFICATION AND FINANCING PROPOSAL  
CAP GRANT, SAN LUIS, AZ

**Uses & Sources of  
Funds:**  
(Millions of dollars)

Uses	Amount	%
Construction*	\$ 0.63	100.0
<b>TOTAL</b>	<b>\$ 0.63</b>	<b>100.0</b>
Sources	Amount	%
City of San Luis	\$0.13	20.7
NADB CAP Grant	\$0.50	79.3
<b>TOTAL</b>	<b>\$0.63</b>	<b>100.0</b>

\* Includes costs related to construction only.

## **AND FINANCING PROPOSAL**

### **NEW WATER TRANSMISSION LINE** **SAN LUIS, ARIZONA**

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#### **1. ELIGIBILITY**

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##### **Project Type**

The Project falls within the eligible sector of drinking water.

##### **Project Location**

The Project is located in the city of San Luis, Arizona, immediately adjacent to the U.S.-Mexico border.

##### **Project Sponsor and Local Authority**

The public-sector Project sponsor is the City of San Luis, AZ (the "Sponsor"). Pursuant to the Arizona Revised Statutes (A.R.S.) 9-511 and 9-514, the City of San Luis has the legal authority to operate and maintain water treatment, storage, and distribution systems, as well as the wastewater collection and treatment systems. The Public Works Department of the City of San Luis is authorized to provide water utility services to the community and is responsible for developing infrastructure improvement projects.

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#### **2. CERTIFICATION CRITERIA**

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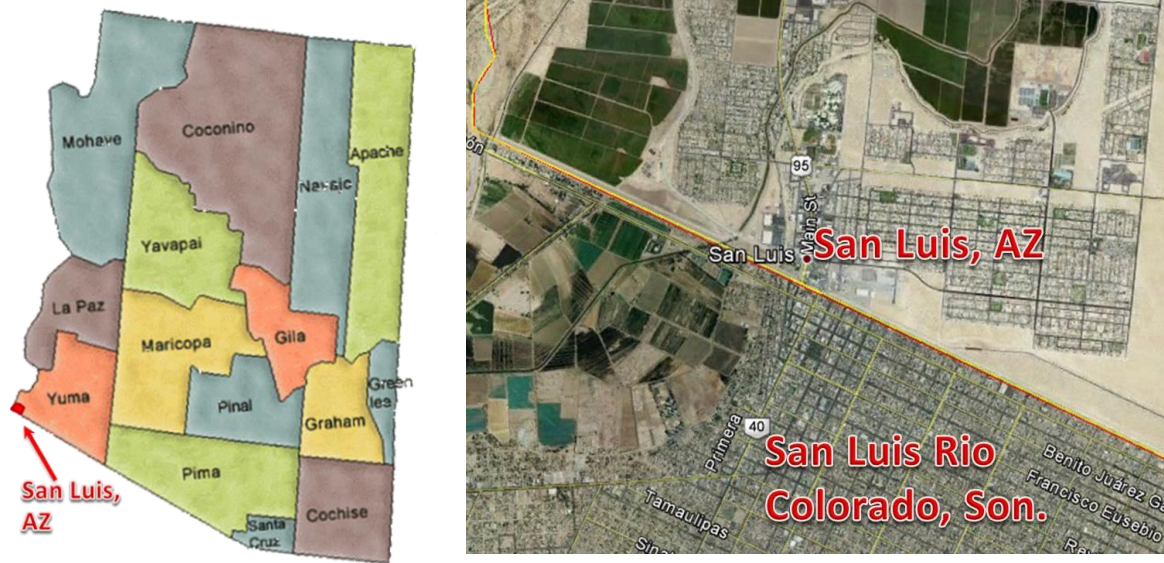
##### **2.1. TECHNICAL CRITERIA**

###### **2.1.1. Project Description**

##### **Geographic Location**

The city of San Luis is located in Yuma County in the southwestern corner of the state of Arizona directly across the international border from San Luis Rio Colorado, Sonora. Figure 1 shows the location of San Luis.

**Figure 1**  
**PROJECT VICINITY MAP**



**General Community Profile**

According to the population projections of the U.S. Census Bureau, the city had 25,505 residents in 2010, having grown at an average annual rate of 5.23% over the last ten years from a population of 15,322 in 2000.<sup>2</sup> Current estimates have the city's population at 30,607 residents.<sup>3</sup>

The city's economic activities are based primarily on agriculture, trade, and manufacturing. The economically active population is estimated to be 7,714 inhabitants. The poverty level for San Luis is estimated at 35.2 %, exceeding the 15.3% poverty level estimated for the state. The median household income (MHI) is estimated at US\$25,622, which is 47 percent less than the state MHI of US\$50,448.<sup>4</sup>

The status of public services in San Luis is described in the table below.

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<sup>2</sup>US Census Bureau, 2006-2010 American Community Survey 5-Year Estimates at: [http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_10\\_5YR\\_DP03](http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_5YR_DP03)

<sup>3</sup> Source: City of San Luis, July 2012.

<sup>4</sup> US Census Bureau, 2006-2010 American Community Survey 5-Year Estimates (<http://quickfacts.census.gov/qfd/states>).

**Table 1**  
**BASIC PUBLIC SERVICES AND INFRASTRUCTURE**

Water System			
Water coverage	100%		
Supply source	Underground, Colorado River Basin		
Number of hookups	5,939		
Wastewater Collection			
Coverage	100%		
Number of connections:	5,939		
Wastewater Treatment			
Coverage	100%		
Treatment facilities	Plant	Type	Capacity
	West WWTP	SBR	1.5 MGD
	East Mesa WWTP	SBR	1.0 MGD
Solid Waste			
Collection coverage	100%		
Final disposal	Landfill		
Street Paving			
Street paving coverage	99%		

Source: City of San Luis, July 2012.  
 SBR = Sequencing batch reactor; mgd = millions gallons a day

**Local Water System**

Water and wastewater services are provided by the City through its Public Works Department. Currently, the City has two separate water distribution systems (WDS). The central WDS is an older system with a capacity of 4 million gallons per day (MGD), while the newer East Mesa system has 3 MGD of capacity. The central system operates at capacity during the summer months, and the City has implemented water conservation measures to help meet current water demand. The lack of capacity is also causing low pressure incidents, which can result in backflows and cross-contamination. The East Mesa system, on the other hand, is currently underutilized and has 90% of its capacity available.

A Water System Plan Study completed in 2007 identified interconnecting these two systems as a priority for addressing this problem and improving the reliability and flexibility of the city's water services. The new waterline will increase total water supply capacity for the Central WDS from 4 to 7 MGD, which is expected to meet the water demands of the city for the next 10 years. It is estimated that approximately 24,000 residents will benefit from this Project. Consequently, the water transmission main is a priority project for the City.

The wastewater collected in San Luis is treated at the city's two wastewater treatment plants (WWTP): the West WWTP with 1.5 MGD of capacity and the East Mesa WWTP with 1 MGD of capacity. Both facilities provide wastewater treatment using sequence batch reactor technology.

Existing wastewater treatment capacity is sufficient to address the current flows, which are estimated at 1.15 MGD.

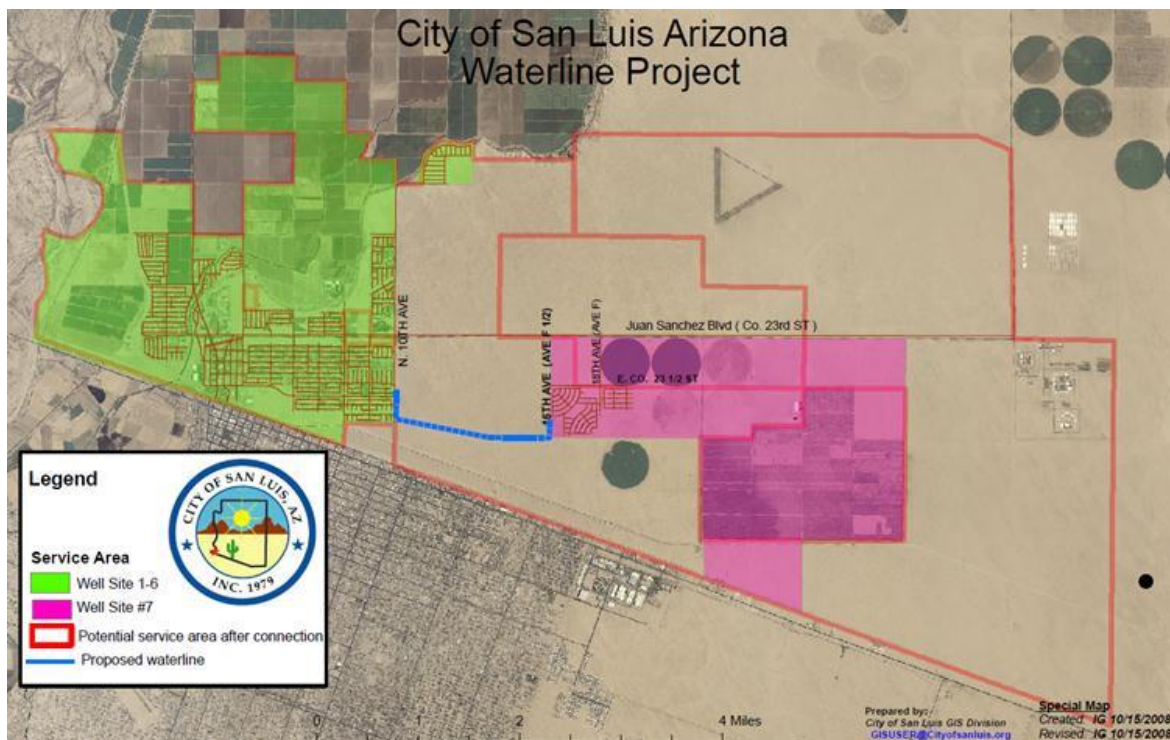
**Project Scope and Design**

The Project consists of constructing a new water transmission main to interconnect two separate water distribution systems and includes the following components:

- 16-inch C-905 Class 165 PVC water main – 8,733 linear feet
- 16-inch resilient wedge gate valves – 21 valves
- Air release valve – 1 valve
- Blow-off valve – 2 valves

Figure 2 shows the general location of the Project within the city of San Luis. The purple area shown in the figure is the East Mesa System served by Well 7, while the green shaded area is the central system served by wells 1 through 6; the proposed waterline is showed in blue.

**Figure 2  
LOCATION OF PROJECT**



The City has obtained the construction permit for the transmission line from the Yuma County Department of Development Services (YCCDS). According to the permit, construction must initiate before February 2013. Table 2 shows the proposed schedule for Project implementation milestones.



**Table 2**  
**PROJECT MILESTONES**

Key Milestones	Status
Procurement	Anticipated: 4 <sup>th</sup> quarter 2012
Construction period	Six months from initiation

**2.1.2. Technical Feasibility**

**Design Criteria**

The final design of the proposed San Luis waterline was completed in accordance with the minimum design criteria established by the Arizona Department of Environmental Quality (ADEQ) as outlined in Arizona Administrative Code (ACC). The ACC requires the Project to be constructed in accordance with the following regulations:

- *Arizona Revised Statutes (A.R.S.), Title 49, Chapter 2, Water Quality Standards;*
- *Arizona state law, A.R.S. 49-104.B.10, establishing construction requirements according to ADEQ;*
- *Arizona Administrative Code, Section R18-4-119, which establishes required fittings and valves;*
- *Arizona Administrative Code Title 18, Chapter 4 (ACC R18-4), relating to primary drinking water regulations; and*
- *Arizona Administrative Code Title 18, Chapter 5, Article 5 (ACC R18-5-502,504), which specifies the minimum design criteria and approval to construct.*

The final design is also consistent with Engineering Bulletin No. 10, Chapter 1, section D.1.

**Selected Technology**

During the final design process, technical alternatives for pipe diameter, material and alignment were evaluated. To identify the most appropriate technology, technical alternatives were evaluated pursuant to the following factors:

- Required connection points for the system components
- Investment cost
- Operation and maintenance cost
- Materials and equipment reliability
- Environmental impact
- Sustainable technology and practices

Pipe diameter was selected using an appropriate slope, capacity, and required pressure to prevent leakage and over-excavation. The analysis also considered using various pipe materials

in compliance with applicable standards and regulations. High density polyethylene and PVC pipes were evaluated, and their characteristics and suitability for the soil type were reviewed. For the proposed Project, PVC was the selected material for the waterline, which is the same material used throughout the existing system and has proven to offer reliable operation. Based on these factors and the required design criteria, the location of the pipeline was selected taking into consideration the shortest distance within available rights-of-way.

### **2.1.3. Land Acquisition and Right-of-Way Requirements**

The waterline will be installed along approximately 1.5 miles of federal land owned by the U.S. Bureau of Land Management (BLM) and managed by the U.S. Bureau of Reclamation (BOR). Under Contract No. 09-07-34-L1632, BOR has issued a consent agreement for the construction of the waterline through the federal land within a 66-foot wide right-of-way.

### **2.1.4. Management and Operations**

Management, construction, and operation of the proposed Project will be the responsibility of the Public Works Department of the City of San Luis, which has sufficient resources and staff available for these purposes. The Project Sponsor has an O&M manual that includes the primary tasks needed to ensure proper operation of the new infrastructure.

The Public Works Department consists of four divisions: Streets Division, Solid Waste Division, Water Division and Wastewater Division. The Water Division is responsible for O&M of water distribution systems and has established procedures that identify routine operation and maintenance tasks for the waterline. With a 2012 budget of \$250,000 for water maintenance, the Department serves approximately 5,939 water hookups and 5,939 wastewater connections, and provides treatment to approximately 1.15 MGD of wastewater. The new water line is anticipated to require an annual O&M budget of \$2,570 per year; however, the overall budget is not anticipated to be increased due to other efficiencies achieved in the overall O&M procedures.

## **2.2. ENVIRONMENTAL CRITERIA**

The new waterline will increase capacity and provide two-way directional flow for the transfer of 3 MGD of water to meet daily peak demand in the central system during the summer, reinforcing system reliability. The lack of an adequate water distribution system would impact the health of area residents, including the risks associated with inadequate pressure.

## **2.2.1. Compliance with Applicable Environmental Laws and Regulations**

### **Applicable Laws and Regulations**

The Project will be constructed within a right-of-way easement issued by BOR, which required a Cultural Resources Survey prior to granting access. There are no additional environmental clearance laws applicable to the Project.

### **Environmental Studies and Compliance Actions**

In compliance with the BOR permit (Report Number: LC-AZ-09-08), the City of San Luis performed a Cultural Resources Survey of the Project area. There was no finding of historic properties affected.

The City of San Luis also obtained construction approval from the Yuma County Department of Development Services (YCDDS). This certificate gives the City permission to install the 16-inch PVC waterline, as long as notice is given to YCDDS as required in A.R.S. Section 49-104.B.10.

### **Pending Environmental Tasks and Clearances**

There are no pending environmental tasks or authorizations.

### **Compliance Documents**

The following formal authorizations have been obtained for the Project:

1. Bureau of Reclamation ARPA Permit, Report number LC-AZ-09-08
2. BOR Consent Agreement, Contract No. 09-07-34-L1632

## **2.2.2. Environmental Effects/Impacts**

### **Existing Conditions and Project Impact – Environmental**

The proposed Project will reduce potential water shortages by interconnecting the two existing distribution systems. Through the Project, the City will be able to distribute water adequately throughout its service area in compliance with state and federal regulations. Environmental effects expected as a result of Project implementation include:

- Improved water resource management; and
- Reduced risks associated with inadequate water pressure.

The environmental impact resulting from Project implementation will be positive overall, given that this Project will contribute to better distribution of available potable water sources.

### Mitigation of Risks

Only minor environmental impacts are anticipated during construction of the Project, provided that the tasks are implemented in accordance with best management practices. Potential impacts may be present during the construction phase and include the following:

- Fugitive dust emissions;
- Combustion gas emissions from construction machinery; and
- Temporary roadway blockages and presence of workers in the area.

Typical mitigation measures to be practiced:

- Application of water to reduce fugitive dust emissions;
- Vehicle tune ups to reduce emissions; and
- Placement of warning signs to prevent potentially hazardous situations.

The cultural resources study developed for the Project concluded that there was no evidence of anthropological assets that might be affected by the installation of the waterline in the Project area. Should any historical and/or archeological remains be found, construction activities will be stopped and the appropriate department will be contacted for further assistance.

### Natural Resource Conservation

The Project will contribute to the conservation of natural resources by avoiding the need to drill new groundwater wells to serve the central DWS and to utilize sources available at an existing well site. The new bi-directional waterline will ensure sufficiency in water distributed and provides a dependable source to supply the drinking water demands projected for the next 10 years.

### No Action Alternative

The no-action alternative was not considered viable. Failing to implement actions to improve the city's water distribution system would significantly limit the Public Works Department's ability to provide adequate water services. In addition, an available water source, Well Site 7, would continue to be underutilized, which is inconsistent with good water management practices.

### Existing Conditions and Project Impact – Human Health

Waterborne diseases are caused by pathogenic microorganisms that are directly transmitted as a result of inadequate wastewater disposal practices and unsafe water supplies. An individual can become ill after drinking water that has been contaminated with these organisms, eating uncooked foods that have been in contact with contaminated water, or through poor hygiene habits that contribute to the dissemination of diseases by direct or indirect human contact. Table 3 shows waterborne statistics for Yuma County, Arizona.

**Table 3**  
**WATERBORNE STATISTICS FOR YUMA COUNTY, ARIZONA**

Disease	Number of Cases per year				
	2011	2010	2009	2008	2007
Amebiasis	0	0	0	0	0
Campylobacteriosis	56	28	29	27	17
Coccidioidomycosis	30	19	12	7	13
Cryptosporidiosis	0	0	0	0	0
Giardiasis	1	2	1	3	2
Shigellosis	13	27	40	18	15

Source: Arizona Department of Health Services, Office of Infectious Disease Services.

Insufficient capacity and low pressure events in the San Luis' current distribution system can result in backflows and cross-contamination of wastewater in drinking water, which may pose a health risk for water users. The Project will help prevent these problems by ensuring the transmission and distribution of safe drinking water throughout the city. According to the World Health Organization, access to safe water and sanitation facilities, as well as better hygiene practices can reduce ascariasis-related morbidity by 29%.<sup>5</sup>

***Transboundary Effects***

Due to the proximity of San Luis, Arizona, to San Luis Rio Colorado, Sonora (Figure 1), there are frequent border crossings between the two communities. Therefore, environmental and health conditions in San Luis also affect San Luis Rio Colorado. The construction of the needed water distribution infrastructure will have a direct positive impact on the health of area residents. No negative transboundary impacts are anticipated.

**2.3. FINANCIAL CRITERIA**

**2.3.1. Uses and Sources of Funds**

The total estimated cost for construction of the Project is US\$631,176. The Project Sponsor requested a US\$500,000 grant from NADB through its Community Assistance Program (CAP) to complete the financing of the Project. Table 4 presents a summary of total Project costs and the sources of funds.

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<sup>5</sup> WHO, Water, Sanitation and Hygiene Links to Health, Facts and figures updated November 2004 ([http://www.who.int/water\\_sanitation\\_health/publications/facts2004/en/](http://www.who.int/water_sanitation_health/publications/facts2004/en/)).

**Table 4**  
**USES AND SOURCES OF FUNDS**

<b>Uses</b>	<b>Amount</b>	<b>%</b>
Construction	\$ 631,176	100.0
<b>TOTAL</b>	<b>\$ 631,176</b>	<b>100.0</b>
<b>Sources</b>	<b>Amount</b>	
City of San Luis, AZ	\$ 131,176	20.8
NADB CAP Grant	\$ 500,000	79.2
<b>TOTAL</b>	<b>\$ 631,176</b>	<b>100.0</b>

### **2.3.2 Program Criteria Compliance**

The Project complies with all CAP criteria. It is located within the U.S.-Mexico border region served by BECC and NADB, is being sponsored by a public sector entity and is in an environmental sector eligible for NADB financing. Additionally, as a drinking water project, it is considered a priority under the CAP program. As show in the above table, the Project Sponsor has agreed to cover more than 20% of the project cost, well above the 10% minimum required under the program.

The Project was selected through an evaluation and prioritization process using criteria mainly based on financial need, level of project readiness and number of residents to benefit. The representative degree of financial need in the project area was evaluated by comparing household income. In the U.S., the median household income (MHI) of a community was compared to the average MHI of U.S. communities in the border region. For the current evaluation, the average U.S. border MHI was US\$71,823. During the 2006-2010 period, the MHI for San Luis was estimated at US\$25,622, considerably below the average U.S. border MHI, as well as the state MHI of US\$50,448. According to the U.S. Census Bureau, 35.2% of residents in San Luis were living below poverty level during that period.

All necessary permits and authorizations have been obtained, and the Project Sponsor is ready to initiate bidding for construction once funding has been approved. Upon completion, the city's entire population of 30,607 will benefit by having access to safe and reliable water services. The Project has been a priority for the community since 2007, but has not been implemented, in part, due to lack of funding.

### **2.3.3. Conclusion**

For the above reasons, NADB proposes providing the City of San Luis, Arizona, a US\$500,000 CAP grant, in accordance with the terms and conditions proposed in Annex B.

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### 3. PUBLIC ACCESS TO INFORMATION

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#### 3.1. PUBLIC CONSULTATION

BECC published the Draft Certification and Financing Proposal for a 14-day public comment period beginning November 2, 2012. The following Project documents were made available for public access:

- Approval to Construct Water Facilities, YCDDS File No. PR09-0019;
- Time Extension Request Approval;
- Final Design for the 16-inch water main, Avenue H to Avenue F1/2, prepared by James Davey and Associates for City of San Luis in 2009;
- Cultural Resources Survey of a 1.5 mile long by 130-inch wide corridor for a 16-inch water main on Bureau of Reclamation withdrawn lands, City of San Luis, Yuma County, Arizona: Bureau of Reclamation Report Number: LC-AZ-09-08. July 30, 2009;
- City of San Luis, Arizona: Water System Plan prepared by Gannet Fleming for the Arizona Department of Water Resources, August 2008; and
- Consent Agreement between BOR and the City of San Luis, Contract No. 09-07-34-L1632.

The 14-day public comment period ended on November 16, 2012, with no comments received.

#### 3.2. OUTREACH ACTIVITIES

The Sponsor promoted the Project at several City Council meetings. The meetings were open to the general public, and meeting agendas were made available beforehand. The Project also received attention from local media, such as the *YumaSun* and *BajoElSol*. Information in news articles highlighted the Project as being considered for a US\$500,000 grant from NADB to improve the city's water infrastructure.